CLAIMS

What is claimed is:

1. A method for identifying a control path of a controlled system, comprising the steps of:

   determining at least one deterministic perturbation correcting signal in a first identification process;

   storing the perturbation correcting signal in the form of a function; and

   identifying a control path of the controlled system in a second identification process by adding to the controlled system the at least one stored deterministic perturbation correcting signal with a negative feedback.

2. The method of claim 1, wherein the function is stored in the form of a table and/or in the form of splines.

3. The method of claim 2, wherein the at least one deterministic perturbation correcting signal is determined from an output signal obtained from at least one controller of a closed control loop of the controlled system.

4. The method of claim 3, and further comprising the step of setting an amplification factor of the controller to a high value for determining the deterministic perturbation correcting signal in the first identification process.

5. The method of claim 3, and further comprising the step of setting an amplification factor of the controller to a low value for identifying a control path of the controlled system in the second identification process.

6. The method of claim 1, and further comprising the step of applying in the second identification process to the input of the controlled system a stimulus signal for exciting the controlled system.

7. The method of claim 6, wherein the stimulus signal has a broad-band frequency spectrum.

8. The method of claim 1, wherein the perturbation correcting signal is added at the same location where a deterministic perturbation is applied in the controlled system.

9. The method of claim 1, wherein identifying the control path of the controlled system in the second identification process includes the steps of Fourier-transforming an input signal and an output signal of the controlled system into the frequency domain, dividing the Fourier-transformed output signal by the Fourier-transformed input signal, and computing a complex transmission function of the controlled system to identify the control path.

10. The method of claim 9, wherein computing the complex transmission function includes computing a frequency response of a magnitude and of a phase of the controlled system.

11. Use of the method of claim 1 for identifying a control path of a controlled system employed in a machine tool, a production machine or a robot.

12. Use of the method according to claim 11 for identifying the control path of a controlled system experiencing perturbation effects from slot latching of a drive motor driving a machine tool, a production machine or a robot.